

ITP 2015 Conference Booklet

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Chapter 1

Pre-Arrival

1.1 Registration and Conference Fee

In short

- (1) you need to make a bank transfer for the conference fee in your local currency, and
- (2) you need to email Xingyuan with your details
(xingyuanzhang at 126 dot com)

Xingyuan will then confirm that the payment has been received. Note that if you are Chinese and need a *fa piao* to reclaim the conference fee, you need to contact Xingyuan directly before making any money transfer.

The early conference fee is RMB 3300, which is approximately £350, \$533, or €488. It must be transferred via bank transfer and must be made in your local currency; we cannot accept any other form of payment. The tutorials can be registered independently from the conference.

The conference fee includes lunches during the conference. It also covers the excursion, the conference banquet and a welcome reception.

Early conference fee until 31. July:	RMB 3300
Late conference fee from 1. August:	RMB 3800
Additional banquet dinner and excursion: (one is included in the conference fee)	RMB 530
Isabelle tutorial (21 – 23 August):	RMB 250
Coq tutorial (27 – 29 August):	RMB 200

The amount payable needs to be transferred to the account:

Account holder's name: Zhang Xingyuan
Beneficiary bank: BANK OF CHINA
Swift Code: BKCHCNBJ940
Account number: 504066588897
Beneficiary bank address: Nanjing Mei Hua Shan Zhuang
Sub-branch, Nanjing, China
Account holder's address: Suite 2106, Building 20,
20 Biao Ying,
Qinhuai District,
Nanjing, Jiangsu Province,
People's Republic of China.

Please make doubly-sure that your bank transferral contains your full name as reference (additional information field), and is in your local currency (e.g. €, \$, £)! Otherwise we will have no idea where the money came from, and will not be able to receive the money on our end. Please also make sure that your transferral covers all bank fees.

1.2 Hotel Booking

In short, you need to send your arrival and departure details to Chunhan (chunhanwu at 126 dot com).

While it is possible to book the hotel via official online travel web-pages, the price there is higher. The easiest is to send Chunhan your name, arrival and departure dates and he will send you back a booking ticket from Hanyuan hotel, which you might need for your visa application. You can pay the hotel when you arrive using Visa or MasterCard.

1.3 Visa

Please be aware that for travelling to China you will need a visa, for which you have to apply **beforehand**. It often takes one or two weeks before a visa is granted. Though if you are prepared to pay a higher application fee, then you can shorten the delay to a few days. For the visa you will need an invitation letter, which Chunhan will send you (chunhanwu at 126 dot com). You need to provide him with your name, title, DOB, work address, e-mail and paper title (if you present a paper). He will e-mail you the invitation letter. You might also need your hotel booking (see above) and flight details for the visa application.

Chapter 2

Arrival

Welcome in China. You made it to the destination airport. Unless you are one of the very few foreigners who can speak and read Chinese, potentially the most challenging part of your journey is about to begin. Below we explain how to get to Hanyuan Hotel in Nanjing from Nanjing Lukou Airport and from Shanghai Pudong Airport. If you arrive from somewhere else and need help, please let us know.

China is generally a safe country for travelling, if the usual precautions are taken. We assume you have never been in China before, therefore let us still start with some general points.

- **Weather** Unfortunately end of August is the time when it will be especially hot in Nanjing (usually above 30°C). Be prepared with lots of light clothes, but do not forget a jumper, or sweater, since many places are air-conditioned. It can also rain.
- **Bottled Water** Whereas in many places it is safe to drink water from taps, do not take chances and drink only bottled water! During the conference we will provide bottled water. In other places you have to buy bottles yourself. Remember, Chinese are famous for nibbling on a bottle with hot tea the whole day, even in sweltering temperatures. There is a reason for this.
- **Traffic** Do not even think of renting a car in China. Hence, while in China, you probably will be mostly going around on foot. Be careful though: You might come from a region where traffic rules are organised so that pedestrians are mostly treated with respect by all other road users, or even have an “elevated status” because they are considered the “weakest”. Traffic in China is, in contrast, organised more, shall we say, according to a Darwinian model: Under no circumstance assume a car (or even a bicycle or one of the noiseless electric motor bikes) will stop for you. As pedestrian, you have to take care of everybody else. Therefore, whenever possible cross roads at traffic lights and even if the light shows green for you, look out for cars that pay no attention to this fact. Also, zebra crossings do *not*, I repeat, *do not* have any special meaning in China for the road users higher up the traffic ladder (i.e. bicycles and above). Even if it sounds too funny, take our word and head this advice...it might increase your life-expectancy.
- **Free Public Wifi / Mobile Phones** While free public wifi is nowadays pretty ubiquitous in big cities in China (Starbucks, Costas, McDonalds are obvious places where

to find wifi), you need a working mobile phone in order to use it. You will have to register your number when you log in, and the wifi operator will then send you a password token via SMS. The problem is that chances are great your mobile phone will *not* work in China. Therefore do not assume you can check information on the Internet while travelling.

At the hotel there will be wifi (with the super-secure password: 123456789). But again, do not assume you can download that last episode of the Daily Show: while bandwidth will generally be enough for reading email, be prepared for an uninterrupted stay in China, free from any disturbance coming from online demands.

- **Google etc** There are two Great Walls in China: one prevents you from accessing Google, for example. Use www.aol.com or www.bing.com instead as your preferred search engine. Also, if you care about such things, set your status on Facebook to “unavailable” for the period of time you will be in China. Ditto Twitter.
- **Map of Hotel / Taxis** While more and more young Chinese are exposed to English, you cannot rely on anyone of the general public speaking more than a few words. Rather, you have to always calculate with the very, very likely scenario that nobody speaks any English at all and all signs round you are written in characters that do not give you the slightest idea what they are about. This means you always have to prepare your travelling beforehand and ask us for help if you are unsure!

One part of *every* trip preparation, including your arrival, should be to carry with you a printed copy of the map where the Hanyuan Hotel is located (see Fig. 2.1). When you want to go to the hotel by taxi, you need to show the map to the driver, since telling Hanyuan Hotel will most probably not be understood and also the driver most likely does not know where it is located. Showing the map will also guard against the possible situation where a taxi driver cannot actually read the address.¹ Take the map always with you: it might be your life-line for avoiding unpleasant situations. For travelling inside Nanjing, taxis can be hailed at the street curb. You need to pay them in cash. They are always metered.

- **Tips in Restaurants, Taxi** One easy part of travelling in China are matters to do with tipping: No tips are expected when paying at a restaurant, for a taxi journey etc. The good thing about this is you are treated as a nice customer, if you are a nice customer (meaning you treat staff with respect).
- **Cash / Credit Cards** While foreign credit cards are accepted in a number of places, including the hotel,² these places are considered “upmarked” in China. So if you insist on being able to use your credit card, you will often be paying some form of premium. Cash still rules many aspects of Chinese life (metro ticket, taxi journey,...) where foreign credit cards are of no use (China has its own credit card system which

¹You might sneer at this. But remember: the prime age of Chinese taxi drivers appears to be 50 plus. If you can also remember, between 1966 and 1976 somebody had the “great” idea to be nasty to teachers (amongst others). So the education these people were able to receive when their were in their teens was rather rudimentary. Given that the ability of reading Chinese characters takes years of arduous studying, it is glaringly obvious that it is not their fault.

²Visa and Mastercard

- If you already paid the fixed price for the metro, why not going the whole way by metro? This is the third option. The disadvantage is that you need to change at Nanjing Nan Railway Station to Line 3 and at Daxinggong to Line 2 for Xiamafang or Muxuyuan, which are the closest stations to the Hanyuan Hotel (see Fig. 2.2). Both stations then need a 15 minutes walk to the hotel. This is another disadvantage of this option if you have a heavy suitcase.

Getting a Ticket for the Metro in Nanjing

Like in all Chinese metro stations, entering the metro station at the airport means you have to go through a brief security check where your luggage will be X-rayed. After the check you will see ticket machines



which can change the language to English (in this way you can avoid having to talk to a sales person in the ticket counter, who might not speak any English). You need to select the destination station on the touch screen (shown on the right). Next you need to pay for the ticket with 10 RMB or 5 RMB bank notes, or 1 RMB coins. If you do not have them yet, you will need to go to the counter near the ticket machines. After paying, the machine will issue a blue plastic coin which is your ticket. This coin needs to be swiped when going through the gates of the metro (shown on the right below).



At the end of your journey you will have to return the blue coin at the exit gate. (??)

2.2 Travel from Shanghai Pudong Airport

Many of the participants will arrive at Shanghai Pudong Airport. From there, in short, you have to get to (1) the Hong Qiao railway station and then from there to (2) Nanjing Nan railway station. From Nanjing Nan it is best to take a taxi, but you can also take the metro as explained in the previous section. Overall this will take approximately 3h of travelling to the hotel.

From Shanghai Pudong Airport to Hong Qiao Train Station

For the first leg to Hong Qiao train station there are essentially two travel options: one recommended by locals and being the more sensible option is to take the airport bus; the other is by the World's only commercial Maglev train including a change to the metro.

- **Option 1 by Airport bus:**

At the Pudong Airport follow the signs for Airport Bus, or Airport Ring Bus. You have to take Line 1, which operates between 7:00 and 23:00. The bus stop where you have to wait is



The waiting time is around 15 minutes during peak hours, or 30 minutes at other times. The ticket costs 30 RMB (€4.25, \$5) and can be bought on the bus. This however requires cash. While you wait, be prepared to be harassed by taxi drivers, who insist on driving you to Hong Qiao train station. You can ignore them: it will cost you more, around 100 RMB; the bus is comfortable and air-conditioned, unlike the taxi; and, like the taxi driver, the bus driver already aims for maximum possible speed given good road conditions.

The airport bus takes around 1h and makes only two stops at the very end of the journey. Both stops are in near proximity. You have to take the *second* stop at Hong Qiao Railway Station. You will be able to see the big signs of Hong Qiao Railway Station when you approach the station. Do not take the exit for Hong Qiao International Airport.

- **Option 2 Maglev train / Metro:** Of course travelling on the Maglev is pretty cool... reaching speeds of 415 km/h at certain(!) times of the day, namely 9:02–10:47 and 15:02–16:47. At other times it will travel at mere speeds of 300 km/h, which you get in China also with conventional high-speed trains. Anyway, a ticket for the Maglev will set you back around 50 RMB (€7, \$8). The ticket can be paid in cash or with credit card. The service of the Maglev starts at 7:02 and finished the day at 21:42. To take this option at the airport, you will need to follow the Maglev signs. The main problem with this option, however, is that you can only go until Longyang Road Station and then have to change into the overcrowded and much, much slower metro Line 2. The change to the metro is a short walk from the Maglev. You have to first buy a ticket inside the metro station. The good thing about this option is that metro travelling in Shanghai is pretty easy for foreigners as all stations are signed out in letters.

Overall the journey time of this option is around 2h. So unless you really want to sample the feeling of travelling for 7 minutes at 415 km/h, we recommend Option 1 by bus.

From Hong Qiao Train Station to Nanjing Nan via High-Speed Train

The airport bus will stop directly in front of the southern part of the Hong Qiao train station. As background, train stations above the village level in China are organised more

like an airport, than the more sleepy train station you might be familiar with. Therefore you first have to go through a security gate where luggage is checked and you padded by a security guard. The security guard might be of either sex and this is seen as normal by Chinese.

Next you need to buy a train ticket. There are ticket counters, see left below, signed out in the main hall. (Unlike the metro, ticket machines for trains are of no use for you, because you would need a Chinese ID-card in order to buy anything.)



You have to queue on the usually longer queue and buy a ticket for Nanjing Nan (Nan stands for South station). You will need to show your passport in order to buy a ticket. The ticket will cost around 135 RMB and looks like this:



The G-Number (G42 above) stands for the train number, which identifies the train also on the large displays at the hall. Below that number is the date and departure time, in this case 2015-08-12 and departure time 10:28. To the right is the coach number (14) and seat number (09C). Just below from that is the sign that the ticket is for second class (- -). For the short duration of the trip there is no real need to buy a ticket for first class. On the top right-hand corner is the platform signed out (10A). If not, you have to look at the large display in the hall to get this information.

Next you have to wait for your train on the main concourse of the station. Assuming you have some time, rest for a moment and take in the atmosphere of a typical Chinese train station... definitely busy. Once you know the platform, go to the gate. Be careful, the gates are nestled between shops and can be easily overlooked. For each platform there are two gates labelled 'A' and 'B', respectively. They are on opposite sides of the main hall. 'A' stands for the front of the train and 'B' for the rear – you know which one to go to from the

coach number on your ticket. When the gates are opened for your train you need to show again your passport verifying that it is you who is travelling on the ticket. The journey to Nanjing Nan takes around 1h.

Nanjing Nan Railway Station to the Hanyuan Hotel

Like in the section for travelling from Nanjing Lukou Airport there are two option you can take from Nanjing Nan. The only difference is that the train station has a different taxi stand, which is signed out at the station. At the taxi stand you need to take a yellow taxi that goes to "Nanjing Downtown". The taxi will cost around 36 RMB and needs to be paid in cash.

Address of Hanyuan Hotel:



Figure 2.1: The location of the Hanyuan Hotel. Please print out!



Figure 2.2: Metro map of Nanjing. Stations Xiamafang and Muxuyuan on Line 2 are closest to the hotel.

Chapter 3

Conference Programme

3.1 Schedule of the Excursion

On Wednesday afternoon there will be the traditional ITP excursion, this time to a Chinese garden in Yangzhou and the Slender West Lake. You might like to note a few points:

- The conference session will end at 11:30, and you should finish lunch no later than 12:20 in order to get to the hotel lobby.
- Boarding the shuttle bus is at 12:30 sharp!
- The first leg of the bus journey takes roughly 40 minutes to Ge Yuan Garden (meaning Bamboo Garden). This is a small garden in traditional Chinese style. We will be there for approximately 1h.
- After Ge Yuan, we are going to board the shuttle bus again for Slender West Lake. We are going to enter the Slender West Lake area from its North Gate. The walking tour at Slender West Lake will be led by two guides speaking English.
- After the walk, we will board boats which will bring us to the South Gate of the lake.
- The banquet restaurant (named Lion Pavilion) is located on the campus of Yangzhou University. It will take us a 5 minute walk from the South Gate to get there.
- We expect that the shuttle bus brings us back starting around 21:30 and we should be back in the hotel by 23:00.

Monday

9:00 – 10:00
Short Intro Session
M. Moscato, C. Munoz, A. Smith
Affine Arithmetic and Applications to Real-Number Proving
20 mins coffee break
10:20 – 11:10
J. Hölzl, A. Lochbihler, D. Traytel
A Formalized Hierarchy of Probabilistic System Types (Proof Pearl)
F. Immler
A Verified Enclosure for the Lorenz Attractor (Rough Diamond)
20 mins coffee break
11:30 – 12:30
A. Anand, R. Knepper
ROSCoq: Robots Powered by Constructive Reals
H. Chan, M. Norrish
Mechanisation of AKS Algorithm: Part 1 – the Main Theorem
2hs lunch break
14:30 – 15:30
S. Schneider, G. Smolka, S. Hack
A First-Order Functional Intermediate Language for Verified Compilers
A. Fox
Improved Tool Support for Machine-Code Decompileation in HOL4
30 mins coffee break
16:00 – 17:00
F. Besson, S. Blazy, P. Wilke
A Concrete Memory Model for CompCert
T. Tuerk, M. Myreen, R. Kumar
Pattern Matches in HOL: A New Representation and Improved Code Generation

Tuesday

9:00 – 10:00 (chair: M. Norrish)
A. Charguéraud, F. Pottier
Machine-Checked Verification of the Correctness and Amortized Complexity of an Efficient Union-Find Implementation
T. Nipkow
Amortized Complexity Verified
20 mins coffee break
10:20 – 11:10
S. Blazy, D. Demange, D. Pichardie
Validating Dominator Trees for a Fast, Verified Dominance Test
A. Lochbihler, A. Maximova
Stream Fusion for Isabelle's Code Generator (Rough Diamond)
20 mins coffee break
11:30 – 12:30 (chair: X. Zhang)
L. Birkedal
Invited Talk
2hs lunch break
14:30 – 15:30
M. Abdulaziz, M. Norrish, C. Grettton
Verified Over-Approximation of the Diameters of Propositionally Factored Transition Systems
T. Prathamesh
Formalizing Knot Theory in Isabelle/HOL
30 mins coffee break
16:00 – 17:00
S. Schäfer, T. Tebbi, G. Smolka
Autosubst: Reasoning with de Bruijn Terms and Parallel Substitutions
P. Maksimovic, A. Schmitt
HOCore in Coq
short coffee break
17:15 – 18:00
ITP Business Meeting

Wednesday

9:00 – 10:00
R. Spadotti A Mechanized Theory of Regular Trees in Dependent Type Theory
G. Smolka, S. Schäfer, C. Doczkal Transfinite Constructions in Classical Type Theory
30 mins coffee break
10:30 – 11:30
M. Norrish Invited Talk
1h Lunch break
12:30 – 21:30
Excursion to Ge Yuan Garden and Slender West Lake Bus departs at 12:30 sharp from the hotel Dinner will be at the Lion Pavilion restaurant which is close to the Slender West Lake We expect to be back at the hotel around 22:30

Thursday

9:00 – 10:00
B. Fallenstein, R. Kumar Proof-Producing Reflection for HOL, with an Application to Model Polymorphism
O. Kunčar, A. Popescu A Consistent Foundation for Isabelle/HOL
20 mins coffee break
10:20 – 11:10
Z. Paraskevopoulou <i>et al</i> Foundational Property-Based Testing
C. Kaliszky, J. Urban, J. Vyskocil Learning To Parse on Aligned Corpora (Rough Diamond)
20 mins coffee break
11:30 – 12:30
F. Sieczkowski, A. Bizjak, L. Birkedal ModuRes: A Coq Library for Modular Reasoning about Concurrent Higher-Order Imperative Programming Languages
S. Boulmé, A. Maréchal Refinement to Certify Abstract Interpretations, Illustrated on Linearization for Polyhedra
2hs lunch break
14:30 – 15:30
C. Sternagel, R. Thiemann Deriving Comparators and Show-Functions in Isabelle/HOL
R. Affeldt, J. Garrigue Formalization of Error-correcting Codes: from Hamming to Modern Coding Theory
30 mins coffee break
16:00 – 17:00
P. Lammich Refinement to Imperative/HOL
B. Barras, C. Tankink, E. Tassi Asynchronous Processing of Coq Documents: from the Kernel up to the User Interface
short coffee break
17:15 – 17:45
L. Cruz-Filipe, P. Schneider-Kamp Formalizing Size-Optimal Sorting Networks: Extracting a Certified Proof Checker